We claim:

1. The use of α-lipoic acid or α-dihydrolipoic acid for increasing the bioavailability of mineral salts.

2. The use as claimed in claim 1, wherein at least one mineral salt is used in combination with α-lipoic acid or α-dihydrolipoic acid.

3. The use as claimed in claim 2, wherein mineral salts of the formula I are used,

$$(M)_n(B)_m \quad I$$

where

M is a monovalent to trivalent physiologically acceptable metal cation,

B is a monovalent to trivalent physiologically acceptable anion,

n is 1, 2 or 3 and

m is 1, 2 or 3,

where the subscripts n and m correspond to the valency and charge equalization of the mineral salt of the formula I.

4. The use as claimed in claim 1 or 2, wherein the combination used is metal α-lipoates, metal α-dihydrolipoates or metal-α-lipoic acid complexes.

5. The use as claimed in claim 4, wherein the combination used is metal α-lipoates, metal α-dihydrolipoates or metal-α-lipoic acid complexes of the formula II,

$$(M)_w(Lp)_x(A)_y(H_2O)_z \quad II$$

where

M is a monovalent to trivalent physiologically acceptable metal cation or a mixture of monovalent to trivalent physiologically acceptable metal cations,

Lp is racemic α-lipoic acid or α-dihydrolipoic acid, (R)- or (S)-α-lipoic acid or (R)- or (S)-α-dihydrolipoic acid, racemic α-lipoate or dihydro-α-lipoate or (R)- or (S)-α-lipoate or (R)- or (S)-dihydro-α-lipoate,

A is a physiologically acceptable monovalent or divalent anion,

w is 1 or 2

x is 1, 2, 3 or 4,

y is 0, 1, 2 or 3 and

z is 0, 1, 2, 3, 4, 5 or 6,

where the subscripts w, x and y correspond to the valency and charge equalization of the compound of the formula II.

6. The use as claimed in one of claims 1 to 5, wherein the α-lipoic acid used is (R)-α-lipoic acid or the α-lipoate used is (R)-α-lipoate.

7. A preparation comprising at least one mineral salt and (R)-α-lipoic acid or (S)-α-lipoic acid.

8. A metal α-lipoate, metal α-dihydrolipoate or metal-α-lipoic acid complex of the formula II',

$$(M)_w(Lp)_x(A)_y(H_2O)_z \qquad II'$$

where

M is a monovalent to trivalent physiologically acceptable metal cation or a mixture of monovalent to trivalent physiologically acceptable metal cations,

Lp is racemic α-lipoic acid or α-dihydrolipoic acid, (R)- or (S)-α-lipoic acid or (R)- or (S)-α-dihydrolipoic acid, racemic α-lipoate or dihydro-α-lipoate or (R)- or (S)-α-lipoate or (R)- or (S)-dihydro-α-lipoate,

A is a physiologically acceptable monovalent or divalent anion,

w is 1 or 2,

x is 1, 2, 3 or 4,

y is 0, 1, 2 or 3 and

z is 0, 1, 2, 3, 4, 5 or 6,

where the subscripts w, x and y correspond to the valency and charge equalization and

the following compounds are excluded:

$Mn(Lip^-)ClO_4$, $Cu(Lip^-)ClO_4$, $Zn(Lip^-)ClO_4$, $Cd(Lip^-)ClO_4$, $Pb(Lip^-)ClO_4$, $Hg(Lip_{rac})(OH)_2$, $Hg(DHL_{rac}^{2-})$, $Ni(DHL_{rac}^{2-})$, $Fe_2(DHL_{rac}^{2-})_3$, $Zn(Lip_{rac}^-)_2(H_2O)_2$, $Cd(Lip_{rac}^-)_2(H_2O)_2$

where

Lip^- is monovalent negative racemic or (R)– or (S)–α–lipoate,

Lip_{rac}^- is monovalent negative racemic α–lipoate,

Lip_{rac} is racemic α–lipoic acid and

DHL_{rac}^{2-} - is divalent negative racemic α-dihydrolipoate.

9. A preparation comprising metal α–lipoates, metal α–dihydrolipoates or metal–α–lipoic acid complexes as claimed in claim 8.

10. A preparation comprising metal α–lipoates, metal α–dihydrolipoates or metal–α–lipoic acid complexes as claimed in claim 5 and α–lipoic acid or α–dihydrolipoic acid.

11. The use of the metal α–lipoates, metal α–dihydrolipoates or metal–α–lipoic acid complexes as claimed in claim 5 as feedstuff or food supplements.

12. The use of the metal α–lipoates, metal α–dihydrolipoates or metal–α–lipoic acid complexes as claimed in claim 5 in cosmetic formulations.

13. A metal α–lipoate, metal α–dihydrolipoate or metal-α–lipoic acid complex as claimed in claim 5 for use as drugs.

14. The use of the metal α–lipoates, metal α–dihydrolipoates or metal-α–lipoic acid complexes as claimed in claim 5 for preparing a drug for treating disorders in which lipoic acid has a therapeutic or prophylactic effect and there is a mineral salt deficiency.

15. The use of the metal α–lipoates, metal α–dihydrolipoates or metal-α–lipoic acid complexes as claimed in claim 5 in accordance with claim 14 for treating diabetes, tumors, HIV infections, AIDS, renal insufficiency, malnutrition, protein-energy malnutrition and mineral deficiencies.